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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,328	04/20/2001	Ingvar Claesson	0104-0328P	1022
2292	7590	10/27/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TSAI, HENRY	
			ART UNIT	PAPER NUMBER
			2183	12
DATE MAILED: 10/27/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/838,328

Applicant(s)

CLAESSON ET AL.

Examiner

Henry W.H. Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 8/27/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4, 5, 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-14, 17-19, and 22-25 is/are rejected.
- 7) ☒ Claim(s) 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received:
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

2. Claims 1-3, 6-14, 17, 18, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Redmond et al. (USP 5,913,955) in view of Lazarus et al. (USP 5,687,462).

Referring to claim 1, Redmond et al. discloses the claimed invention comprising, a control unit and converting means which are connectible to the control unit (control system, see Col. 5, line 24 or line 36) and comprise a vibration sensor (S51-S53, see Col. 5, lines 24-25, and Col. 5, lines 66-67 to Col. 6, lines 1-13) and at least one actuator (A1 see Fig. 1, or A21, A22, see Fig. 2), and the actuator comprising at least one active element (A21, A22, see Fig. 2), which converts an A.C. voltage (inherently as shown in Fig. 17, and Col. 14, lines 26-37) supplied by the control unit to the actuator (A21, A22, see Fig. 2) into dimensional changes, wherein said active element is adapted to be in the body of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar), and wherein

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said active element is adapted to be in such manner that said dimensional changes (A21, A22, see Fig. 2, and Col. 5, lines 33-34, regarding the active elements A21 and A22 can expand and contract longitudinally) impart bending moments (See Col. 5, lines 33-38) to the body of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar).

Referring to claim 9, Redmond et al. discloses, as claimed, a method for vibration control in cutting (See Col. 6, lines 15-26), comprising the steps of detecting the vibrations of a tool holder during cutting (see Col. 5, lines 24-25, and Col. 5, lines 66-67 to Col. 6, lines 1-13, regarding the sensors S51-S53 being used to detect the vibration of the tool), and generating control vibrations (see Col. 6, line 27) in the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar), by means of at least one active element which is electrically controlled to generate changes in a dimension of said active element (A21, A22, see Fig. 2, and Col. 5, lines 33-34, regarding the active elements A21 and A22 can expand and contract longitudinally), imparting bending moments (See Col. 5, lines 33-38) to the body of the tool holder by generating at least one control voltage (V(t), see Col. 8, line 23) and applying the control voltage (V(t), see Col. 8, line 23) across

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said active element, and by varying the control voltage ( $V(t)$ , see Col. 8, line 23) according to the detected vibrations.

Referring to claim 11, Redmond et al. discloses, as claimed, a tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar) which is adapted to support a tool for cutting (See Col. 6, lines 15-26), the tool holder comprising at least one actuator, said actuator comprising at least one active element (A21, A22, see Fig. 2), which is electrically controlled to generate changes in a dimension of said active element (A21, A22, see Fig. 2, and Col. 5, lines 33-34, regarding the active elements A21 and A22 can expand and contract longitudinally), wherein said active element (A21, A22, see Fig. 2) is in the body of the tool holder and imparts, through said changes in dimension (A21, A22, see Fig. 2, and Col. 5, lines 33-34, regarding the active elements A21 and A22 can expand and contract longitudinally), bending moments (See Col. 5, lines 33-38) to the body of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar).

Redmond et al. discloses the claimed invention except for: the active element being embedded in the body of the tool holder so as to be covered (in claims 1, 9, and 11).

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However, Redmond et al. discloses the active element (A21 and A22, see Fig. 1) being disposed in the recess (P21, P22 respectively, see Fig. 2).

Lazarus et al. discloses a cutting device comprising the active element (112, or 216, see Figs. 4A or 4B) being embedded in the body of the tool holder (machine element 20 see Fig. 1A or Fig. 1B, and Col. 4, line 41-42) so as to be covered (note the active elements 216 are embedded and covered by the polyimide sheet 210 as shown in Fig. 4A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Redmond et al.'s device to comprise the active element being embedded in the body of the tool holder so as to be covered, as taught by Lazarus et al., in order to protect and prevent the active elements from being damaged due to the exposure to the external environment for the Redmond et al.'s tool during the machining process.

As to claims 8, 10, and 24, Redmond et al. discloses the claimed invention except for: explicitly showing the active element being a piezoceramic element.

Lazarus et al. discloses a cutting device comprising the active element being a piezoceramic element(112) as shown in Fig. 2B.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Redmond et al.'s device to comprise the active element being a piezoceramic element, as taught by Lazarus et al., in order to facilitate precisely effecting the reduction of vibration for the Redmond et al.'s tool during the machining process.

As to claims 17, 18, and 23, Redmond et al. discloses the claimed invention except for: the active element is connected with the tool holder via a glue joint, and that the recess is sealed (claims 17 and 18); and said embedded elements being cast into the body of the tool holder (claim 23).

However, Redmond et al. discloses the active element (A21 and A22, see Fig. 1) being disposed in the recess (P21, P22 respectively, see Fig. 2) in the body of the tool holder (B2, see Fig. 1) in the body of the tool holder (B2, see Fig. 1).

Lazarus et al. discloses a cutting device comprising the active element (112, or 216, see Figs. 2B, 4A and 4B) is connected with the tool holder via a glue joint (see Col. 4, line 44 or Col. 5, line 13, regarding a quick setting adhesive), and that the recess is sealed (note the active elements 216 are embedded and sealed by the polyimide sheet 210 as shown in Fig. 4A ; and said embedded elements (112, or 216, see Figs. 2B, 4A and 5A) being cast into the body of the tool holder (machine

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element 20 see Fig. 1A, and Col. 4, line 41-42). (Note as shown in Fig. 1B, the active elements 216, see Fig. 4A, fixedly integrated with the tool holder are broadly interpreted as being cast thereinto.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Redmond et al.'s device to comprise: the active element is connected with the tool holder via a glue joint, and that the recess is sealed; and said embedded elements being cast into the body of the tool holder, as taught by Lazarus et al., in order to protect and prevent the active elements from being damaged due to the exposure to the external environment for the Redmond et al.'s tool during the machining process.

As to claims 2 and 12, Redmond et al. also discloses: said active element (A21, A22, see Fig. 2) being with its centre axis spaced from the centre axis of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar).

As to claims 3 and 13, Redmond et al. also discloses: said active element (A21, A22, see Fig. 2) being close to the surface of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar).

As to claim 6, Redmond et al. also discloses: said active element (A21, A22, see Fig. 2) being plate shaped.



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As to claim 7, Redmond et al. also discloses: said actuator (A21, A22, see Fig. 2) comprises a double element which consists of two active elements (A21, A22, see Fig. 2) which are attached to each other (indirectly, see Fig. 2).

As to claim 25, Redmond et al. also discloses: the machine (tool holder B2, see Fig. 2, see also Col. 4, lines 52-53, and Col. 6, line 26 as a boring bar) being one of a machine for turning, a machine for milling or a machine for drilling.

As to claim 14, Redmond et al. also discloses: at least one pair of active elements (A21, A22, see Fig. 2) being arranged in such manner that the active elements (A21, A22, see Fig. 2) included in the pair are oppositely arranged on each side of the centre axis of the tool holder (B2, see Fig. 2, see also Col. 4, lines 52-53, as a boring bar).

As to claim 22, Redmond et al. also discloses: the tool holder comprising an embedded, piezoelectric sensor element (S51-S53, see Fig. 5, and also see Col. 5, lines 24-25, and Col. 5, lines 66-67 to Col. 6, lines 1-13). Note the sensor such as accelerometer S51 is inherently a piezoelectric sensor.

3. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redmond et al. in view of Lazarus et al. as

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applied to claims 1-3, 6-14, 17, 18, and 22-25 above, and further in view of Rydberg et al. (USP 6,146,060).

Referring to claim 19, Redmond et al./Lazarus et al. discloses the claimed invention except for: the tool holder consisting of an insert holder for a turning lathe.

Rydberg et al. discloses a cutting tool (70, see Fig. 9A) comprising: the tool holder (71, see Fig. 9A), consisting of an insert holder (72, see Fig. 9A) for a turning lathe (see Col. 9, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Redmond et al./Lazarus et al.'s tool to comprise: the tool holder consisting of an insert holder for a turning lathe, as taught by Rydberg et al., in order to increase the functionality such as parting or grooving process for the Redmond et al./Lazarus et al.'s tool (see Col. 8, lines 56-57).

#### ***Allowable Subject Matter***

4. Claims 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. Claims 4, 5, 15, and 16 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: Redmond et al. and Lazarus et al., the closest references, do not teach or fairly suggest: a tool holder comprising a portion of said active element is within the recess (in claims 4 and 15); the tool holder consisting of a teeth holder for a milling machine, wherein the teeth holder comprises active elements, which are helically arranged round the centre axis of the teeth holder (in claim 20); and the tool holder consisting of a teeth holder for a drilling machine, wherein the teeth holder comprises active elements which are helically arranged round the centre axis of the teeth holder (in claim 21).

***Response to Amendment***

7. Applicant's arguments mailed 8/27/03 have been considered but are moot in view of the new ground(s) of rejection.

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry

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Tsai whose telephone number is (703) 308-7600. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Eddie Chan, can be reached on (703) 305-9712. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 receptionist whose telephone number is (703) 305-3900.

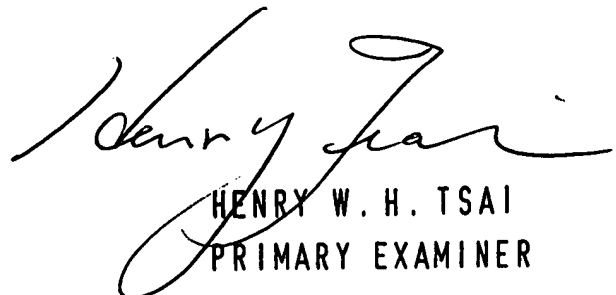
9. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into the Group at fax number:

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**After Final faxes: 703-746-7238;**

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This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2100 will be promptly forward to the examiner.

  
HENRY W. H. TSAI  
PRIMARY EXAMINER

October 10, 2003